Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 9129/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Energy Resources Limited**

1.3. Property details

Property: Petroleum Exploration Permit EP 389
Petroleum Exploration Permit EP 440
Petroleum Production Licence L 18
Local Government Area: Shire of Gingin
Colloquial name: Romanesque 3D and Black Cormorant 2D Seismic Surveys

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.73		Mechanical Removal	Seismic Survey

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 March 2021

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation of the application area is broadly mapped as the following Beard vegetation associations:
37: Shrublands; teatree thicket;
949: Low woodland; banksia;
1014: Mosaic: Low woodland; banksia / Shrublands; teatree thicket;
1015: Mosaic: Mixed scrub-heath / Shrublands; dryandra thicket; and
1027: Mosaic: Medium open woodland; jarrah and marri, with low woodland; banksia / Medium sparse woodland; jarrah and marri (GIS Database).

A flora and vegetation survey was conducted over an area of approximately 153 hectares, by Strategen JBS&G (Strategen) during 25 – 26 September and 2 and 8 October 2019 (Strategen, 2020a; 2020b). The survey area included the clearing permit application area and surrounding areas. The following vegetation associations were recorded within the application area (Strategen, 2020a):

VT1: *Banksia attenuata* and *Banksia menziesii* low open woodland over *Eremaea pauciflora* over *Mesomelaena pseudostygia* low shrubland.
VT2: *Banksia prionotes* and *Eucalyptus todtiana* low open woodland over *Hakea lissocarpha* and *Xanthorrhoea preissi* mid open shrubland over *Hibbertia hypericoides*, *Isopogon drummondii* and *Synaphea spinulosa* low shrubland.
VT3: *Adenanthos cygnorum* tall shrubland over *Daviesia preissii, Xanthorrhoea preissii* mid open shrubland over *Eremaea pauciflora, Stirlingia latifolia* and *Scholtzia involucrata* low shrubland.
VT4: *Banksia attenuata, Nuytsia floribunda* and *Eucalyptus todtiana* low open woodland over *Adenanthos cygnorum, Allocasuarina humilis* and *Xanthorrhoea preissii* mid open shrubland over *Stirlingia latifolia*, *Eremaea pauciflora* and *Hibbertia hypericoides* low shrubland.
VT5: *Isopogon drummondii, Daviesia preissii* and *Synapheae spinulosa* shrubland.
VT6: *Banksia attenuata, Banksia menziesii* low woodland, *Eremaea pauciflora*, *Melaleuca systena* and *Xanthorrhoea preissii* mid open shrubland over *Mesomelaena pseudostygia* and *Melaleuca systena* low open shrubland.
VT7: *Banksia hookeriana* and *Adenanthos cygnorum* open low woodland over *Jacksonia floribunda, Eremaea pauciflora* and *Conospermum incurvum* low shrubland.
VT8: *Melaleuca preissiana*, *Banksia littoralis* and *Nuytsia floribunda* open low woodland over *Melaleuca seriata, Xanthorrhoea preissii* and *Verticordia nitens* mid shrubland.

Clearing Description

Romanesque and Black Cormorant Seismic Survey.
Energy Resources Limited proposes to clear up to 3.73 hectares of native vegetation within a boundary of approximately 134 hectares, for the purpose of seismic surveys. The application areas are located between approximately 15 to 40 kilometres northwest of Gingin, within the Shire of Gingin.

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

To

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

Comment

The vegetation condition was derived from a vegetation survey conducted by Strategen (2020a). The majority of the vegetation within the application area was described as ranging from 'Good' to 'Excellent' condition on the Keighery scale, although some small areas were considered to be in 'Degraded' condition.

The majority of the proposed Romanesque and Black Cormorant seismic survey project will be located on cleared farmland. This clearing permit application represents a very small portion of the overall project, where the proposed seismic lines traverse small patches of remnant vegetation.

The clearing permit application comprises several small linear application areas, totalling approximately 134 hectares in size. The proposed clearing of up to 3.73 hectares of native vegetation will create tracks approximately 3.5 metres wide to allow for access of the vibroseis truck and light vehicles through the small patches of remnant vegetation. The application areas are each approximately 100 metres wide to allow for flexibility in the final location of the proposed clearing corridors, to allow the avoidance of large trees and other significant features and minimise the environmental impacts of the clearing.

3. Assessment of application against Clearing Principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Comments

Proposal is not likely to be at variance to this Principle

The clearing permit application area is located within the Perth and Dandaragan Plateau subregions of the Interim Biogeographic Regionalisation for Australia (IBRA) Swan Coastal Plain Bioregion (GIS Database). The Perth Plateau subregion is characterised by a low lying coastal plain supporting woodlands, dominated by Banksia or Tuart on sandy soils, *Casuarina obesa* on outwash plains, and paperbark in swampy areas (CALM, 2002). Within the subregion there are areas of relatively high ecosystem or species diversity, particularly on the eastern side of the coastal plain (CALM, 2002). The Dandaragan Plateau subregion is characterised by sands and laterites, supporting Banksia low woodland, Jarrah - Marri woodland, Marri woodland on the plateau, and scrub-heaths on laterite pavements and gravelly sandplains (CALM, 2002). This subregion also exhibits a degree of floristic endemism in some areas (CALM, 2002).

A flora and vegetation survey was conducted over the application area and surrounding areas during September and October 2019 (Strategen, 2020a; 2020b). A total of 151 native flora taxa were recorded during the survey, representing 37 plant families and 93 genera (Strategen, 2020a). Strategen (2020a) reported that the condition of the vegetation within the surveyed areas ranged from Excellent to Good, on the Keighery scale.

The application area falls within a dieback risk zone (GIS Database), and care should be taken to prevent vehicle movements spreading or introducing dieback within the remnant vegetation. As dieback disease is more likely to be spread during wet soil conditions, the seismic survey has been timed to avoid the winter months, reducing the risk of the spread of dieback disease (Energy Resources, 2021).

A total of nine weed species were recorded within the broader survey area during the flora survey: *Aira caryophyllea* (Silvery Hairgrass); *Arctotheca calendula* (Cape Weed); *Briza maxima* (Blowfly Grass); *Ehrharta calycina* (Perennial Veldt Grass); *Ehrharta longiflora* (Annual Veldt Grass); *Gladiolus caryophyllaceus* (Wild Gladiolus); *Hypochaeris glabra* (Smooth Cats-ear); *Ursinia anthemoides* (Ursinia); and *Wahlenbergia capensis* (Cape Bluebell); none of which are listed as declared pests under the *Biosecurity and Agriculture Management Act 2007* (Strategen, 2020a). Weeds have the potential to out-compete native species and reduce the biodiversity of an area, and care should be taken to prevent the introduction or spread of weeds in the application area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a dieback and weed management condition on the permit.

A desktop assessment of the project area identified three Threatened flora taxa and 40 Priority flora taxa with the potential to occur within the application area, based on known distributions and habitat preferences (Strategen, 2020a). However no Threatened or Priority flora were recorded during the field survey of the application area and surrounding areas (Strategen, 2020a).

A desktop assessment of the project area identified two Threatened Ecological Communities (TECs), and two Priority Ecologicial Communities (PECs), with the potential to occur within the application area, based on known distributions (Strategen, 2020a; 2020b). One TEC/PEC, the 'Banksia woodlands of the Swan Coastal Plain', was recorded during the field survey of the application area and surrounding areas (Strategen, 2020a).

The 'Banksia woodlands of the Swan Coastal Plain' ecological community is listed as a TEC (Endangered), under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and as a PEC (Priority 3) under the Western Australian *Biodiversity Conservation Act 2016* (BC Act) (DBCA, 2020; DoEE, 2016; Strategen, 2020a). The Banksia Woodlands TEC/PEC is largely restricted to the Perth and Dandaragan Plateau subregions of the Swan Coastal Plain IBRA bioregion (DoEE, 2016). The original extent of native vegetation in the Perth and Dandaragan subregions has been impacted by extensive clearing for agriculture, horticulture and urban development. As a result, the Banksia Woodlands have declined in extent by about 60

percent and now occur in fragmented patches from around Jurien Bay in the north to Dunsborough in the south (DoEE, 2016; GIS Database).

An assessment of the vegetation types identified within the application area, against the TEC diagnostic criteria, determined that the following three vegetation associations recorded within the application area, represent the Banksia Woodlands TEC and corresponding PEC (Strategen, 2020a):
VT1: *Banksia attenuata* and *Banksia menziesii* low open woodland over *Eremaea pauciflora* over *Mesomelaena pseudostygia* low shrubland;
VT4: *Banksia attenuata, Nuytsia floribunda* and *Eucalyptus todtiana* low open woodland over *Adenanthos cygnorum, Allocasuarina humilis* and *Xanthorrhoea preissii* mid open shrubland over *Stirlingia latifolia*, *Eremaea pauciflora* and *Hibbertia hypericoides* low shrubland; and
VT6: *Banksia attenuata, Banksia menziesii* low woodland, *Eremaea pauciflora*, *Melaleuca systena* and *Xanthorrhoea preissii* mid open shrubland over *Mesomelaena pseudostygia* and *Melaleuca systena* low open shrubland.

Approximately 63.7 hectares of the Banksia Woodlands TEC/PEC were mapped during the field survey, in eight distinct patches throughout the total survey area (Strategen, 2020b). The mapped areas of the TEC/PEC overlap with some of the current clearing permit application areas, representing approximately 2.38 hectares of the areas proposed to be cleared during the seismic survey (Strategen, 2020b; GIS Database). The clearing will be done using a low impact 'mulching' method which will result in the vegetation being cut off above the ground and not completely cleared, mitigating potential impacts to the TEC/PEC (Strategen, 2020b). The potential impacts to the TEC/PEC will be further minimised by avoiding stems, trunks and branches with a diameter of greater than 100 millimetres (Strategen, 2020b). Considering the small narrow linear areas to be cleared for the seismic lines and the low impact method of clearing, the proposed clearing of approximately 2.38 hectares of the Banksia Woodlands TEC/PEC is unlikely to have a significant impact on the TEC/PEC.

A desktop assessment of the project area identified two conservation significant fauna species with the potential to occur within the application area, based on known distributions and habitat preferences: Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*); and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso* (Strategen, 2020a). Carnaby's Black Cockatoo were recorded foraging in the area during the field surveys (Strategen, 2020a).

The alignment of the seismic lines was selected to avoid as many environmental features as possible, for example: large trees, soaks, creeklines, conservation areas, conservation significant flora species, conservation significant ecological communities, and significant fauna habitats; and to minimise the clearing of native vegetation as much as possible (Strategen, 2020b). The clearing permit application areas are each approximately 100 metres wide to allow for flexibility in the final location of the proposed 3.5 metre wide seismic lines, to further avoid and minimise environmental impacts (Strategen, 2020b).

The proposed clearing of native vegetation will be conducted using a mulching method, whereby the stems of the vegetation are severed above ground level using tractor mounted mulchers, with the cut vegetation immediately returned to the cleared area as mulch (Strategen, 2020b). The mulcher cannot process stems, branches or trunks larger than 100 millimetres in diameter, and therefore large trees or branches will not be cleared. This method of clearing will minimise soil disturbance, retain the root-systems of the majority of the vegetation, and allow for relatively rapid recovery of the vegetation following the clearing.

Taking into consideration the relatively small area of vegetation clearing (3.73 hectares) spread between several separate locations, the avoidance and minimisation measures adopted, and the low impact clearing methods to be used, the impacts of the proposed clearing of native vegetation on biodiversity are not likely to be significant, in either a local or regional context.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

CALM (2002)
DoEE (2016)
DBCA (2020)
Energy Resources (2021)
Strategen (2020a)
Strategen (2020b)

GIS Database:
- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Flora
- Threatened Fauna

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Comments

Proposal is not likely to be at variance to this Principle

The fauna habitats within the application areas can be broadly described as open low woodland or shrubland on predominantly sandy soils (DPIRD, 2021; Strategen, 2020a).

A desktop assessment of the project area identified two conservation significant fauna species with the potential to occur within the application area, based on known distributions and habitat preferences:
Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (EN); and
Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (VU) (Strategen, 2020a).

There are three key components of Black Cockatoo habitat: foraging habitat; roosting habitat; and breeding habitat (DSEWPAC, 2012). There is a confirmed Carnaby's Black Cockatoo roost site located approximately six kilometres northwest of the northern-most area applied to clear, and the majority of the areas applied to clear fall within broadly mapped Carnaby's Cockatoo breeding areas and potential Carnaby's Cockatoo feeding areas (GIS Database). For a Black Cockatoo breeding site to be viable, there must be sufficient foraging habitat available within 6 to 12 kilometres of a nesting site (DSEWPAC, 2012).

A targeted Black Cockatoo habitat survey was conducted over the application area on 25 – 26 September, 2 and 8 October 2019 (Strategen, 2020a). No Black Cockatoo nesting or roosting sites were recorded within the survey area (Strategen, 2020a). Vegetation suitable for Black Cockatoo feeding was recorded within the survey area and Carnaby's Black Cockatoo were observed foraging in the area during the field surveys (Strategen, 2020a).

Approximately 127 hectares of Black Cockatoo foraging habitat (of varying quality) was recorded within the broader 153 hectare survey area, with four of the vegetation associations (VT1, VT4, VT5, and VT6) identified as providing the highest quality Black Cockatoo foraging habitat within the survey area (Strategen, 2020a). Suitable Black Cockatoo foraging species within the survey area included: *Banksia attenuata, Banksia menziesii*, *Corymbia calophylla*, *Eucalyptus todtiana*, and *Xanthorrhoea preissii* (Strategen, 2020a). Carnaby's Black Cockatoo were observed foraging in the survey area, within vegetation association VT4, and additional foraging evidence (chewed Banksia cones) was also recorded in the survey area (Strategen, 2020a).

The proposed vegetation clearing will be in narrow corridors approximately 3.5 metres wide, and the clearing will be done using a low impact mulching method which will result in the vegetation being cut off above the ground and not completely cleared (Strategen, 2020b). No Black Cockatoo habitat trees (defined as trees with a diameter of 50 centimetres or greater at a height of 1.5 metres above the ground) will be cleared (Strategen, 2020b), hence potential Black Cockatoo nest sites will not be impacted.

Approximately 3.33 hectares of potential Black Cockatoo foraging habitat is proposed to be cleared during the seismic survey, of which approximately 0.97 hectares was considered to be good quality foraging habitat due to the relatively high density of suitable foraging species (Strategen, 2020a). Large trees will not be cleared and the low impact method of clearing will retain the plant root-systems, allowing the vegetation to regenerate relatively quickly following the seismic survey. The impacts of the proposed clearing on the availability of Black Cockatoo foraging habitat are likely to be minor at both a local and regional scale.

Considering the small area of proposed vegetation clearing (3.73 hectares) and the low impact methods to be used, the impacts of the proposed clearing on fauna habitats are not likely to be significant. The habitat types within the application areas are well represented in surrounding areas, and the vegetation to be cleared is unlikely to represent significant fauna habitat in either a local or regional context.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DPIRD (2021)
DSEWPAC (2012)
Strategen (2020a)
Strategen (2020b)

GIS Database:
- Carnabys Cockatoo Breeding Areas Confirmed
- Carnabys Cockatoo Feeding SCP Unconfirmed
- Carnabys Cockatoo Roost Areas Confirmed
- Imagery
- Pre-European Vegetation
- Threatened Fauna

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Comments

Proposal is not likely to be at variance to this Principle

There are no known records of Threatened flora within the areas applied to clear (GIS Database). A desktop assessment of the application area identified several Threatened flora taxa with the potential to occur within the application areas, based on known distributions (Strategen, 2020a). Of these, the following three Threatened flora species were considered possible to occur within the areas applied to clear, based on habitat preferences: *Banksia mimica, Macarthuria keigheryi* and *Paracaleana dixonii* (Strategen, 2020a). These species were targeted during the flora survey conducted over the application areas and surrounding areas, however no species of Threatened flora were recorded during the field survey (Strategen, 2020a; 2020b).

The vegetation associations within the application area are well represented within the region, including within nearby conservation areas (Strategen, 2020b; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Strategen (2020a)
Strategen (2020b)

GIS Database:
- DPaW Tenure
- Imagery
- Pre-European Vegetation
- Threatened and Priority Flora

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known State listed Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database). A flora and vegetation survey of the application area did not identify any State listed TECs (Strategen, 2020a).

However, there is a Federally listed TEC within the application area, and this is discussed in Principle (a). Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Strategen (2020a)

GIS Database:
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments

Proposal is not likely to be at variance to this Principle

The application areas fall within the Perth and Dandaragan Plateau sub-regions of the Swan Coastal Plain Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Less than 42 percent of the pre-European vegetation remains within both the Perth subregion and the Swan Coastal Plain Bioregion (Government of Western Australia, 2019), which is classed as “Depleted” according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002). Less than 30 percent, of the pre-European vegetation remains within the Dandaragan Plateau subregion (Government of Western Australia, 2019), which is classed as “Vulnerable” (Department of Natural Resources and Environment, 2002).

The clearing permit application area is broadly mapped as Beard vegetation associations: 37: Shrublands; teatree thicket; 949: Low woodland; banksia; 1014: Mosaic: Low woodland; banksia / Shrublands; teatree thicket; 1015: Mosaic: Mixed scrub-heath / Shrublands; dryandra thicket; and 1027: Mosaic: Medium open woodland; jarrah and marri, with low woodland; banksia / Medium sparse woodland; jarrah and marri (GIS Database). The majority of these vegetation associations retain more than 30 percent of their original extent at the state, bioregional and sub-regional level (Government of Western Australia, 2019). The exceptions are Beard vegetation association 1015 within the Perth sub-region and Beard vegetation association 1014 within the Dandaragan Plateau sub-region, each of which retain approximately 10% of their original extent (Government of Western Australia, 2019), which gives them a classification of “Vulnerable” (see table below) (Department of Natural Resources and Environment, 2002). However, only one very small application area falling within the Perth sub-region is mapped as Vegetation Association 1015, while none of the application areas within the Dandaragan Plateau sub-region are mapped as Vegetation Association 1014 (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands (and post clearing %)
IBRA Bioregion – Swan Coastal Plain	1,501,221	579,813	~38	Depleted	17.98 (38.45)
IBRA Subregion – Perth	1,117,757	466,142	~41	Depleted	20.51 (39.29)
IBRA Subregion – Dandaragan Plateau	383,464	113,670	~29	Vulnerable	10.62 (34.97)
Local Government – Gingin	319,676	176,727	~55	Least Concern	28.16 (47.10)
Beard vegetation associations – WA					
37	39,296	24,727	~62	Least Concern	14.19 (20.92)
949	218,193	123,104	~56	Least Concern	42.07 (55.86)
1014	41,064	22,787	~55	Least Concern	30.22 (53.72)
1015	19,556	6,639	~33	Depleted	15.38 (44.09)
1027	39,809	23,462	~58	Least Concern	21.92 (36.79)
Beard vegetation associations – Swan Coastal Plain Bioregion					
37	15,617	5,404	~34	Depleted	15.75 (40.96)
949	209,983	120,287	~57	Least Concern	43.26 (56.40)
1014	41,064	22,787	~55	Least Concern	30.22 (53.72)
1015	19,556	6,639	~33	Depleted	15.38 (44.09)
1027	39,534	23,367	~59	Least Concern	22.07 (36.94)
Beard vegetation associations – Perth					
37	14,018	4,784	~34	Depleted	16.43 (44.87)
949	184,475	104,128	~56	Least Concern	45.62 (58.99)
1014	40,856	22,764	~55	Least Concern	30.38 (53.77)
1015	3,685	398	~10	Vulnerable	1.24 (10.94)
1027	265	170	~64	Least Concern	32.31 (50.00)
Beard vegetation associations – Dandaragan Plateau subregion					
37	1,599	620	~38	Depleted	9.72 (10.87)
949	25,507	16,158	~63	Least Concern	26.19 (39.71)
1014	207	22	~10	Vulnerable	no data
1015	15,871	6,240	~39	Least Concern	18.66 (46.20)
1027	39,268	23,197	~59	Least Concern	22.00 (36.84)

* Government of Western Australia (2019)
** Department of Natural Resources and Environment (2002)

The dominant land-uses of the Swan Coastal Plain bioregion are agriculture, horticulture, and urban areas (CALM, 2002). The proposed clearing is located within the Shire of Gingin within several patches of remnant vegetation, most of which are surrounded by cleared farmland. While a substantial part of the surrounding

area has been cleared for agricultural purposes, there are also several conservation areas in close proximity to the clearing application areas (GIS Database). The Shire of Gingin retains approximately 55 percent of its original vegetation extent, while approximately 47 percent of the native vegetation remaining within the Shire is held within DBCA managed land, including the Moore River National Park, Bartletts Well Nature Reserve, and the Boonarring Nature Reserve (Government of Western Australia, 2019; GIS Database).

The proposed clearing of native vegetation will be conducted by severing the stems of the vegetation above ground level using tractor mounted mulchers, with the cut vegetation immediately returned to the cleared area as mulch (Strategen, 2020b). This method of clearing will retain the root-systems of the majority of the vegetation and allow for relatively rapid recovery of the vegetation following the clearing. Considering that the vegetation will not be completely cleared, and the disturbance will be temporary, the proposed clearing is unlikely to change the remaining percentages of the various vegetation associations, and the potential impacts to remnant vegetation are unlikely to be significant.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

CALM (2002)
Department of Natural Resources and Environment (2002)
Strategen (2020b)
Government of Western Australia (2019)

GIS Database:
- DPaW Tenure
- IBRA Australia
- Imagery
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is at variance to this Principle

There are no permanent watercourses or wetlands occurring within any of the clearing permit application areas (Strategen, 2020b; GIS Database).

Two of the application areas occur within close proximity to the Six Mile Swamp, in areas which may be subject to inundation following periods of heavy rainfall (GIS Database). Parts of the Six Mile Swamp are listed as a defined wetland and an Environmentally Sensitive Area (GIS Database). The majority of the Six Mile Swamp falls within the Moore River National Park, while the area to be impacted by the proposed clearing is located just outside the eastern boundary of the national park (GIS Database).

The seismic survey has been timed to avoid the winter period of the year, minimising the risk of wet soil conditions at the time of the seismic survey. However, the sections of the seismic lines located in the vicinity of the Six Mile Swamp will be left out of the seismic survey and will not be cleared if the area is inundated or the soil is waterlogged at the time of the seismic survey (Energy Resources, 2021).

Based on the above, the proposed clearing is at variance to this Principle. However, given the low impact method of the proposed clearing and the scheduled time of year, impacts from the proposed clearing to vegetation growing in association with watercourses or wetlands are likely to be minimal.

Methodology

Energy Resources (2021)
Strategen (2020b)

GIS Database:
- Hydrography, Lakes
- Hydrography, linear
- Imagery
- Topographic Contours, Statewide

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal is not likely to be at variance to this Principle

Advice was sought from the office of the Commissioner of Soil and Land Conservation in relation to this clearing application. The application areas fall within the Capitella Mooliabeenee and the Bassendean soil-landscape systems (DPIRD, 2021). The Capitella Mooliabeenee soils are described as pale coloured shallow to deep sands on undulating rises, while the soils of the Bassendean system are described as ranging from bleached sands to humic dark grey soils in swampy areas (DPIRD, 2021).

The risk of soil salinity occurring in the application area is low (DPIRD, 2021), however, the soils within the application areas are likely to be highly susceptible to wind erosion, water erosion, waterlogging and

eutrophication where the vegetation is substantially removed or the soil surface is disturbed (DPIRD, 2021).

The proposed clearing of native vegetation will be conducted by severing the vegetation above ground level, with the cut vegetation immediately returned to the cleared area as mulch (Strategen, 2020b). This method of clearing will retain the root-systems of most plants and minimise disturbance to the soil surface, which, together with the application of mulch to the cleared areas, will reduce the erosion risks.

The proposed clearing of up to 3.73 hectares of native vegetation within a boundary of approximately 134 hectares, for access tracks approximately 3.5 metres wide, is unlikely to cause appreciable land degradation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology DPIRD (2021)
Strategen (2020b)

GIS Database:
- Dieback Occurrence
- Soils, Statewide

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal is not likely to be at variance to this Principle**
Several conservation areas occur within five kilometres of the various clearing permit application areas. These include the Moore River National Park, Bartletts Well Nature Reserve, Boonarring Nature Reserve, and several small un-named reserves (GIS Database).

No clearing of native vegetation is proposed within any conservation areas (Energy Resources, 2021), however, two of the clearing permit application areas are located immediately adjacent to the eastern boundaries of the Moore River National Park (GIS Database).

The small areas and the low impact and temporary nature of the proposed clearing is unlikely to directly impact on the environmental values of any nearby conservation area. However, care should be taken to avoid the potential introduction or spread of weeds or dieback into any conservation areas. Potential impacts to nearby conservation areas as a result of the proposed clearing may be minimised by the implementation of a weed and dieback management condition on the permit.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Energy Resources (2021)

GIS Database:
- DPaW Tenure
- Imagery

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal is not likely to be at variance to this Principle**
There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Two of the application areas occur within close proximity to the Six Mile Swamp in areas which may be subject to inundation following periods of heavy rainfall (GIS Database). The proponent has advised that the sections of the seismic lines located in the vicinity of the Six Mile Swamp will be left out of the seismic survey and will not be cleared if the area is inundated or waterlogged, to avoid vehicles becoming bogged and minimise the risk of the spread of dieback disease (Energy Resources, 2021).

The proposed clearing is unlikely to result in significant changes to surface water flows, or cause deterioration in the quality of surface or underground water.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Energy Resources (2021)

GIS Database:
- Hydrography, Lakes
- Hydrography, Linear
- Public Drinking Water Source Areas

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

There are no permanent watercourses or wetlands within the areas proposed to clear (GIS Database). Average annual rainfall for the area is approximately 700 millimetres, with the nearest weather station at Gingin reporting an average of 737 millimetres per year, with the majority of rainfall occurring during the winter months (BOM, 2021; DPIRD, 2021).

Two of the application areas occur in close proximity to the Six Mile Swamp in areas which may be subject to flooding during periods of high rainfall (GIS Database). However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events (DPIRD, 2021).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

BOM (2021)
DPIRD (2021)

GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear

Planning Instrument, Native Title, previous EPA decision or other matter.

Comments

The clearing permit application was advertised on 18 January 2021 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. One submission was received in relation to this application, raising no objection to the proposed clearing of native vegetation.

There is one native title claim (WC1997/071) over the area under application (DPLH, 2021). The permit area is within the South West Native Title Settlement area (DPLH, 2021). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. However, the petroleum tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several registered Aboriginal Sites of Significance which may overlap parts of the application areas (DPLH, 2021). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

This clearing permit application is related to the larger Romanesque 3D and Black Cormorant 2D Seismic Acquisition Survey Project which was referred by the proponent to the Environmental Protection Authority (EPA), under Part IV of the *Environmental Protection Act 1986* (EP Act). On 12 February 2021, the EPA determined that the proposal did not require assessment under Part IV of the EP Act, and could be dealt with under Part V Division 2 of the EP Act (clearing of native vegetation provisions) (EPA, 2021).

It is noted that the proposed clearing may impact on Black Cockatoos and the 'Banksia woodlands of the Swan Coastal Plain' TEC, which are protected matters under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Agriculture, Water and the Environment for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Agriculture, Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology

DPLH (2021)
EPA (2021)

4. References

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Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

DoEE (2016) Banksia Woodlands of the Swan Coastal Plain: a nationally-protected ecological community. Department of the Environment and Energy, Commonwealth of Australia.
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EPA (2021) Notice of Decision not to Assess a Proposal. Romanesque 3D and Black Cormorant 2D Seismic Acquisition Survey. Environmental Protection Authority, 12 February 2021
Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Strategen (2020a) Black Cormorant and Romanesque Seismic Surveys. Flora, Vegetation and Black Cockatoo Survey. Report prepared for Energy Resources Limited, by JBS&G Australia Pty Ltd T/A Strategen-JBS&G, June 2020.
Strategen (2020b) Romanesque and Black Cormorant Seismic Survey. Native vegetation Clearing Permit - Purpose Permit Supporting Documentation. Report prepared for Energy Resources Limited, by JBS&G Australia Pty Ltd T/A Strategen-JBS&G, November 2020.

5. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**
Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn

Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.